

[NAME OF DOCUMENT] CLAIMS

[Claim 1]

An optical recording disc constituted so that data can be recorded therein and reproduced therefrom by converging a laser beam having a wavelength λ of 390 nm to 420 nm thereonto using an objective lens having a numerical aperture of 0.7 to 0.9, the optical recording disc comprising at least a substrate, a second dielectric layer formed on the substrate and having a thickness of 5 nm to 100 nm, a decomposition reaction layer formed on the second dielectric layer, having a thickness of 2 nm to 80 nm and containing noble metal oxide as a primary component, a first dielectric layer formed on the decomposition reaction layer, and a light transmission layer formed on the first dielectric layer and having a thickness of 10 μm to 200 μm and being constituted so that when it is irradiated with the laser beam from the side of the light transmission layer, the noble metal oxide contained in the decomposition reaction layer as a primary component is decomposed into a noble metal and oxygen so that a bubble pit is formed in the decomposition reaction layer by thus generated oxygen gas and fine particles of the noble metal precipitate into the bubble pit, thereby forming a recording mark in the decomposition reaction layer.

[Claim 2]

An optical recording disc in accordance with Claim 1, wherein the noble metal oxide is platinum oxide and the platinum oxide is decomposed into platinum and oxygen when the decomposition reaction layer is irradiated with the laser beam via the light transmission layer.

[Claim 3]

An optical recording disc in accordance with Claim 2, wherein each of the fine particles of platinum has a particle diameter smaller than a bubble pit to be formed in the decomposition reaction layer, where the particle diameter of the fine particle of platinum is defined as the
5 diameter of a spherical fine particle of platinum.

[Claim 4]

An optical recording disc in accordance with Claim 1, wherein the decomposition reaction layer has a thickness of 20 nm and 80 nm.

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[Claim 5]

An optical recording disc in accordance with Claim 2, wherein the decomposition reaction layer has a thickness of 20 nm and 80 nm.

15 [Claim 6]

An optical recording disc in accordance with Claim 3, wherein the decomposition reaction layer has a thickness of 20 nm and 80 nm.

[Claim 7]

20 An optical recording disc in accordance with Claim 1, which further comprises a third dielectric layer having a thickness of 10 nm to 140 nm and a light absorbing layer formed on the third dielectric layer and having a thickness of 5 nm to 100 nm located between the substrate and the second dielectric layer and wherein the light absorbing layer
25 absorbs the laser beam and generates heat when the decomposition reaction layer is irradiated with the laser beam from the side of the light transmission layer.

[Claim 8]

An optical recording disc in accordance with Claim 7, wherein the light absorbing layer contains at least one of Sb and Te.

5 [Claim 9]

An optical recording disc in accordance with Claim 7, wherein the light absorbing layer has a thickness of 2 nm to 50 nm.

[Claim 10]

10 An optical recording disc in accordance with Claim 8, wherein the light absorbing layer has a thickness of 2 nm to 50 nm.

[Claim 11]

15 An optical recording disc in accordance with Claim 7, wherein the second dielectric layer and the light absorbing layer are deformed when the bubble pit is formed in the decomposition reaction layer.

[Claim 12]

20 An optical recording disc in accordance with Claim 8, wherein the second dielectric layer and the light absorbing layer are deformed when the bubble pit is formed in the decomposition reaction layer.

[Claim 13]

25 An optical recording disc in accordance with Claim 9, wherein the second dielectric layer and the light absorbing layer are deformed when the bubble pit is formed in the decomposition reaction layer.

[Claim 14]

An optical recording disc in accordance with Claim 10, wherein the second dielectric layer and the light absorbing layer are deformed when the bubble pit is formed in the decomposition reaction layer.

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